

Remarks

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 1-7 and 9-31 are pending in the application, with 1 and 17 being the independent claims. Applicants have amended claims 1, 9, and 17 to remove the term "non-organic acid" and to particularly point out and distinctly claim the acid used in the recovery of the desired organic acid. Support for the amendments to claims 1, 9, and 17 can be found on page 8, lines 21-22 of the specification. Applicants have also provided a clean version of claims 13, 22, and 28 as amended in the Amendment and Reply Applicants submitted on June 18, 2002. The clean version of these claims is provided to correct the Applicants' mistake of not having provided the clean version of these amended claims in the previous Reply. Applicants have placed the application in better condition for Appeal. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

I. Rejections under 35 U.S.C. § 112

The Examiner rejected claims 1-7 and 9-31 under 35 U.S.C. 112, first paragraph as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The Examiner also rejected claims 1-7 and 9-31 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant respectfully traverse these rejections.

In rejecting the claims under 35 U.S.C. 112, first paragraph, the Examiner asserts that the term "non-organic acid" recited in the claims is not adequately supported in the specification and is not an art-recognized term for describing an acid. In rejecting the claims under 35 U.S.C. 112, second paragraph, the Examiner asserts that the term "non-organic acid" is uncertain to meaning and scope. Applicants respectfully disagree. However, in the interest of advancing the prosecution of this application, Applicants have amended claims 1, 9, and 17 to remove the term "non-organic acid" and to particularly point out that the acid present in step (b) of claim 1 and added in step (c) of claim 17 can be any acid which allows for selective recovery of the desired organic acid (see page 8, lines 21-22 of the specification). Therefore, Applicants have distinctly claimed the acid that is added in step (b) of claim 1 and step (c) of claim 17 and have made clear the scope of the acid claimed. Applicants submit that the rejections of claims 1-7 and 9-31 under 35 U.S.C. 112, first and second paragraphs, have been overcome by amendment and should be withdrawn.

II. Rejections under 35 U.S.C. § 103

The Examiner rejected claims 1-7 and 9-31 under 35 U.S.C. 103(a) as being unpatentable over Dumpelmann *et al.* (US 5,852,211) in view of Bott *et al.* (EP 0 174 624). Applicants respectfully traverse this rejection.

The Examiner is of the opinion that it would have been obvious to omit crystallizing NaKGA in the process of Dumpelmann *et al.* and instead filter the fermentation solution, dry the resulting filtrate and react the dried filtrate with the lower alcohol in the presence of acid as suggested by Bott *et al.* using steps of filtering and drying a fermentation solution without crystallizing in the production of a lactic acid ester from a fermentation mixture containing a calcium salt of the lactic acid. The Examiner asserts that filtering and drying without crystallizing would have been expected to simplify the process of Dumpelmann *et al.*, and such simplification would have been motivation to use filtering and drying in place of crystallizing and separating the crystals. Applicants respectfully disagree.

Dumpelmann does not teach the drying of the fermentation broth or the reaction of that dried product with a lower alcohol as claimed by Applicants. Dumpelmann *et al.* teach that "the disadvantages of prior art processes, especially the complete removal of biomass, proteins, etc., e.g., by microfiltration, the use of cation exchangers to remove metal ions from the aqueous fermentation solutions as well as the crystallization or drying of 2-keto-L-gulonic acid, should be avoided" (column 3, lines 26-31). This teaching indicates that Dumpelmann *et al.* discourage the complete isolation of the

2KLG acid from the fermentation broth (containing the biomass, proteins, etc) as well as the drying of the isolated 2KLG acid.

Bott *et al.* discloses filtering the fermentation mixture while hot and isolating (and therefore, completely removing the biomass, proteins, etc.) the calcium lactate as a solid by spray drying the filtrate. Bott *et al.* also teach the reaction of calcium lactate with an alcohol in the presence of an acid to form a water-soluble calcium salt and isolating the lactic acid ester formed. Bott *et al.* does not teach the removal of insolubles after reacting the organic acid-containing dried product (from drying the fermentation broth) with an alcohol in the presence of an acid (step (c) of Applicants' claim 1 and step (d) of claim 17).

Filtering, isolating (therefore, completely removing the biomass, proteins, etc.) and drying the calcium lactate in solid form, as in the method of Bott *et al.*, seem to be in direct contradiction to the teachings of Dumpelmann *et al.* which disclose that complete removal of biomass, proteins, etc. and the crystallization or drying of the organic acid should be avoided. Since the teachings of Dumpelmann *et al.* contradict the teachings of Bott *et al.*, one of ordinary skill in the art would not have been motivated to combine the teachings of the two references to develop the process of the present invention. Therefore, it would not have been obvious to omit crystallizing NaKGA in the process of Dumpelmann *et al.* and instead filter the fermentation solution, dry the resulting filtrate and react the dried filtrate with the lower alcohol in the presence of acid as suggested by Bott *et al.* Applicants respectfully submit that the rejection of claims 1-7 and 9-31 under 35 U.S.C. 103(a) as being unpatentable over Dumpelmann *et al.* (US 5,852,211) in view of Bott *et al.* (EP 0 174 624) has been overcome and should be withdrawn.

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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Version with markings to show changes made***In the Claims:***

The following claims 1, 9, and 17 were substituted for the pending claims 1, 9 and 17:

1. (Twice amended) A process for the recovery of an organic acid from a fermentation broth comprising the steps of:
 - (a) drying said organic acid-containing fermentation broth to obtain an organic acid-containing dried product;
 - (b) adding said organic acid-containing dried product of step (a) to a lower alcohol in the presence of [a non-organic] an acid, wherein said acid can be any acid which allows for selective recovery of the desired organic acid; and
 - (c) removing insolubles to obtain an organic acid.
9. (Twice amended) The process of claim 1, wherein in step (b) about 1.2 equivalents of said [non-organic] acid is present.
17. (Twice amended) A process for the recovery of an organic acid from a fermentation broth comprising the steps of:
 - (a) drying said [fermentation] organic acid-containing fermentation broth to obtain an organic acid-containing dried product;
 - (b) adding said organic acid-containing dried product of step (a) to a lower alcohol to obtain an alcoholic suspension;
 - (c) adding [a non-organic] an acid to said alcoholic suspension of step (b), wherein said acid can be any acid which allows for selective recovery of the desired organic acid; and
 - (d) removing the insolubles to obtain an organic acid.

A clean version of claims 13, 22, and 28 (as amended in the Amendment and Reply
Applicants filed on June 18, 2002) has been provided.